

Renumbered Claims

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application.

Claim 1. (Previously presented) A method of determining whether a member of a pool of cloned test transcription factor polynucleotides encodes a plant pathway transcription factor, the method comprising: collecting a pool of cloned test transcription factor polynucleotides; introducing into a plant cell a nucleic acid comprising a plant promoter of a pathway gene operably linked to a reporter gene; introducing into the plant cell a member of the pool of cloned test transcription factor polynucleotides, wherein said member is selected on the basis of structural similarity to a known transcription factor for a pathway gene; and detecting expression of said reporter gene in the plant cell, thereby determining whether the member of the cloned test transcription factor polynucleotide pool encodes a plant pathway transcription factor.

Claim 2. (Canceled)

Claim 3. (Canceled).

²
Claim ~~4~~. (Currently amended) The method of claim ~~3~~ 1, further comprising detecting the expression of at least one other pathway gene in the cell.

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Claim ~~5~~. (Currently amended) The method of claim ~~3~~ 1, wherein said pathway gene is a biosynthetic pathway gene.

⁹
Claim ~~6~~. (Previously presented) The method of claim ~~5~~ 8, wherein said biosynthetic pathway gene is a primary metabolite pathway gene.

¹⁰
Claim ~~7~~. (Previously presented) The method of claim ~~6~~ 9, wherein said biosynthetic pathway gene is a secondary metabolite pathway gene.

¹²
Claim ~~8~~. (Previously presented) The method of claim ~~7~~ 10, wherein said secondary metabolite pathway gene is a terpenoid pathway gene.

Claim ~~9~~¹¹ (Previously presented) The method of claim ~~7~~¹⁰, wherein said secondary metabolite pathway gene is an alkaloid pathway gene.

Claim ~~10~~³ (Currently amended) The method of claim ~~3-1~~, wherein said cloned test transcription factor polynucleotide is from a plant.

Claim ~~11~~⁴ (Currently amended) The method of claim ~~3-1~~, wherein said cloned test transcription factor polynucleotide is expressed transiently in the plant cell.

Claim 12. (Canceled)

Claim ~~13~~⁵ (Currently amended) The method of claim ~~3-1~~, wherein said plant promoter of a pathway gene operably linked to a reporter gene is transiently transfected into the plant cell.

Claim ~~14~~⁶ (Currently amended) The method of claim ~~3-1~~, wherein said reporter gene is beta-glucuronidase (GUS).

Claim ~~15~~⁷ (Currently amended) The method of claim ~~3-1~~, wherein said [promoter] plant promoter of a pathway gene is the promoter of a biosynthetic pathway gene of a plant that produces secondary metabolites.

Claim ~~16~~¹³ (Previously presented) The method of claim ~~8~~¹², wherein said terpenoid pathway gene is from a species selected from the group consisting of *Mentha* and *Taxus*.

Claim ~~17~~¹⁴ (Previously presented) The method of claim ~~8~~¹², wherein said terpenoid pathway gene is selected from the group consisting of limonene synthase and taxadiene synthase.

~~Cancelled~~
Claim ~~18~~ (Currently amended) The method of claim ~~3-1~~, further comprising deconvoluting the pool of cloned test transcription factor polynucleotides when said pool comprises more than one transcription factor polynucleotide, to identify the minimum number of cloned test transcription factor polynucleotides necessary to detect expression from said [pathway gene promoter] plant promoter of a pathway gene.

~~Claim 19~~ (Withdrawn) A method of determining whether a member of a pool of test transcription factor polynucleotides encodes a transcription factor for a biosynthetic pathway gene, comprising introducing into

a cell a pool of nucleic acid members comprising test transcription factor polynucleotides and detecting accumulation of metabolites in the cell.

~~Claim 20.~~ (Withdrawn) The method of claim 19, wherein said biosynthetic pathway gene is a primary metabolite pathway gene.

~~Claim 21.~~ (Withdrawn) The method of claim 19, wherein said biosynthetic pathway gene is a secondary metabolite pathway gene.

~~Claim 22.~~ (Withdrawn) The method of claim 21, wherein said secondary metabolite pathway gene is a terpenoid pathway gene.

~~Claim 23.~~ (Withdrawn) The method of claim 21, wherein said secondary metabolite pathway gene is an alkaloid gene.

~~Claim 24.~~ (Withdrawn) The method of claim 19, wherein said cell is from a species selected from the group consisting of *Mentha* and *Taxus*.

~~Claim 25.~~ (Withdrawn) A method of determining whether a member of a pool of test transcription factor polynucleotides encodes a transcription factor for a terpenoid pathway gene, comprising introducing into a cell a pool of nucleic acid members comprising test transcription factor polynucleotides and detecting accumulation of terpenoids in the cell.

¹⁵
~~Claim 26.~~ (Currently amended) A method of determining whether a member of a pool of test transcription factor polynucleotides encodes a biosynthetic pathway transcription factor, comprising:

introducing into a plant cell nucleic acids comprising the test transcription factor polynucleotides and detecting expression of a biosynthetic pathway gene in the plant cell by quantitation of the biosynthetic pathway gene RNA level, [wherein said member of the pool of test transcription factor polynucleotides is selected without regard to structural similarity to a known transcription factor for a pathway gene] wherein said member is selected on the basis of structural similarity to a known transcription factor for a pathway gene;

thereby determining whether the member of the cloned test transcription factor polynucleotide pool encodes a plant pathway transcription factor.

~~Claim 27.~~ (Withdrawn). A transgenic plant or plant cell comprising a nucleic acid encoding a pathway transcription factor identified by the method of claim 1.

~~Claim 28.~~ (Withdrawn). The transgenic plant or plant cell of claim 27 comprising a comprising a pathway transcription factor selected from the group consisting of:

(a) a polynucleotide comprising a sequence selected from the group consisting of SEQ ID NOs. 1, 3, 5 and 7; and

(b) a polynucleotide encoding a polypeptide comprising a sequence selected from the group consisting of SEQ ID NOs. 2, 4, 6, and 8.

~~Claim 29.~~ (Withdrawn) A method of isolating a metabolite, the method comprising:

a) providing a plant cell or plant of claim 28; and

b) isolating the metabolite from said plant cell or plant.

~~Claim 30.~~ (Withdrawn) The method of claim 29, wherein said metabolite is a primary or secondary metabolite.

~~Claim 31.~~ (Withdrawn) The method of claim 30, wherein said secondary metabolite is a terpenoid or an alkaloid.

~~Claim 32.~~ (Withdrawn) The method of claim 29, wherein said plant cell or whole plant is selected from a species selected from the group of *Mentha* and *Taxus*.

¹¹⁶
~~Claim 33.~~ (Currently amended) A method of determining whether two or more members of a pool of cloned test transcription factor polynucleotides are required for expression from a pathway gene promoter, wherein said two or more members of a pool of cloned test transcription factor polynucleotides are selected on the basis of structural similarity to a known transcription factor for a pathway gene, the method comprising:

collecting a pool of cloned test transcription factor polynucleotides;

introducing into a plant cell a nucleic acid comprising a biosynthetic pathway gene promoter operably linked to a reporter gene;

introducing into the plant cell the pool of cloned test transcription factor polynucleotides; [and]

detecting expression from said biosynthetic pathway gene promoter in the plant cell, and

deconvoluting the pool of cloned test transcription factor polynucleotides to identify the minimum number

of cloned test transcription factor polynucleotides necessary to detect expression from said biosynthetic pathway gene promoter;

thereby determining whether two or more members of the cloned test transcription factor polynucleotide pool are required for expression from said biosynthetic pathway gene promoter.

Claim 34. Canceled.

Canceled

~~Claim 35.~~ (Previously presented) The method of claim 33, wherein a member of the cloned test transcription factor polynucleotide pool is selected on the basis of structural similarity to a known transcription factor for a pathway gene.

Canceled

~~Claim 36.~~ (Previously presented) The method of claim 33, wherein a member of the cloned test transcription factor polynucleotide pool is selected without regard to structural similarity to a known transcription factor for a pathway gene.

~~17~~ Claim ~~37~~. (Previously presented) The method of claim ~~35~~, further comprising detecting the expression of at least one other pathway gene in the cell.

~~18~~ Claim ~~38~~. (Currently amended) The method of claim ~~33~~, wherein said biosynthetic pathway gene promoter is operably linked to a biosynthetic pathway gene.

~~19~~ Claim ~~39~~. (Previously presented) The method of claim ~~33~~, wherein said biosynthetic pathway gene promoter is a primary metabolite pathway gene promoter.

~~25~~ Claim ~~40~~. (Previously presented) The method of claim ~~33~~, wherein said biosynthetic pathway gene promoter is a secondary metabolite pathway gene promoter.

~~27~~ Claim ~~41~~. (Previously presented) The method of claim ~~40~~, wherein said secondary metabolite pathway gene promoter is a terpenoid pathway gene promoter.

~~26~~ Claim ~~42~~. (Previously presented) The method of claim ~~40~~, wherein said secondary metabolite pathway gene promoter is an alkaloid pathway gene promoter.

Claim ~~43~~²⁰. (Previously presented) The method of claim ~~33~~¹⁶, wherein said cloned test transcription factor polynucleotide is from a plant.

Claim ~~44~~²¹. (Previously presented) The method of claim ~~33~~¹⁶, wherein said cloned test transcription factor polynucleotide is expressed transiently in the cell.

Claim 45. (Canceled).

Claim ~~46~~²³. (Currently amended) The method of claim ~~33~~¹⁶, wherein said biosynthetic pathway gene promoter operably linked to a reporter gene is transiently transfected into a cell.

Claim ~~47~~²⁴. (Previously presented) The method of claim ~~46~~²³, wherein said reporter gene is beta-glucuronidase (GUS).

Claim ~~48~~²². (Previously presented) The method of claim ~~33~~¹⁶, wherein said biosynthetic pathway gene promoter is the promoter of a biosynthetic pathway gene of a plant that produces secondary metabolites.

Claim ~~49~~²⁸. (Previously presented) The method of claim ~~41~~²⁷, wherein said terpenoid pathway gene is from a species selected from the group consisting of *Mentha* and *Taxus*.

Claim ~~50~~²⁹. (Previously presented) The method of claim ~~41~~²⁷, wherein said terpenoid pathway gene is selected from the group consisting of limonene synthase and taxadiene synthase.